

PRECISION FIBER FERRULES

ABSTRACT OF THE DISCLOSURE

A multiple-port optical device uses improved fiber ferrules comprising various capillary designs and shapes to precisely position optical fibers and, in particular, the optical fiber cores. The fibers are screened for geometric characteristics which further aide in precisely positioning the fiber cores. The ferrules, capillaries, fibers, and adhesives are combined to reduce adverse thermal effects and maintain the position of the fibers over a broad range of environmental conditions in which DWDM packages and modules are required to operate.

1. A multiple-port optical device comprising:
a. a plurality of fiber ferrules, each ferrule comprising:
i. a capillary design and shape to precisely position an optical fiber core;
ii. a screen for geometric characteristics of the optical fiber core;
iii. an adhesive to maintain the position of the optical fiber core over a broad range of environmental conditions;
b. a plurality of optical fibers, each fiber comprising:
i. a core;
ii. a cladding;
iii. a buffer;
c. a plurality of optical fiber cores, each core comprising:
i. a core;
ii. a cladding;
iii. a buffer;
d. a plurality of optical fiber ferrules, each ferrule comprising:
i. a capillary design and shape to precisely position an optical fiber core;
ii. a screen for geometric characteristics of the optical fiber core;
iii. an adhesive to maintain the position of the optical fiber core over a broad range of environmental conditions;
e. a plurality of optical fibers, each fiber comprising:
i. a core;
ii. a cladding;
iii. a buffer;
f. a plurality of optical fiber cores, each core comprising:
i. a core;
ii. a cladding;
iii. a buffer;